Panasonic

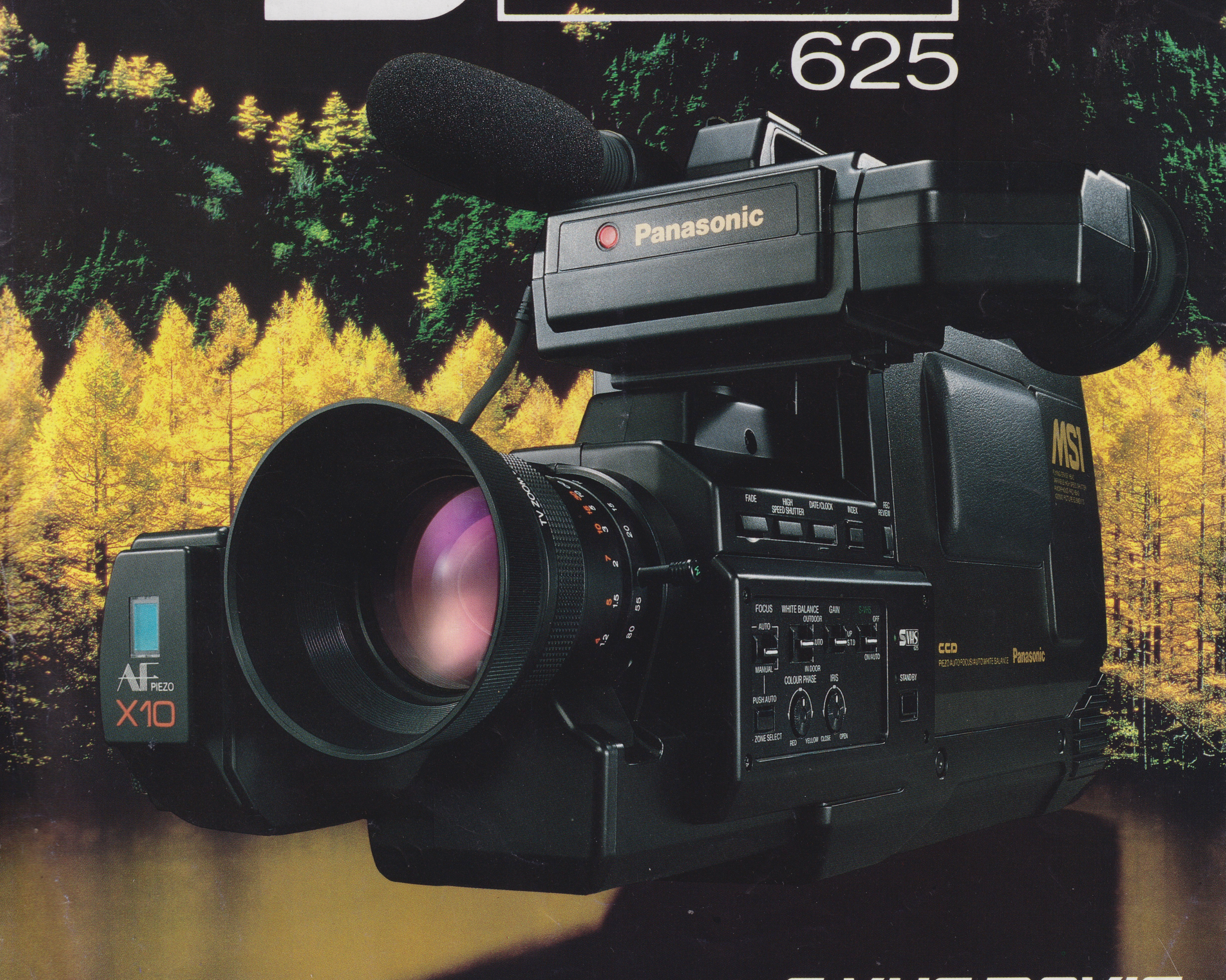
Super VHS Movie Camera

NV-MS1A

MS1

Super VHS Movie Camera
with 10X Power
Zoom Lens

S VHS
625


Panasonic
MS1
FADE
HIGH SPEED SHUTTER
DATE/CLOCK
INDEX
REC REVIEW
TV ZOOM
FOCUS
AUTO
MANUAL
PUSH AUTO
ZONE SELECT
WHITE BALANCE
OUTDOOR
IN DOOR
GAIN
COLOUR PHASE
RED
YELLOW
IRIS
CLOSE
OPEN
OFF
ON/AUTO
STANDBY
CCD
PIEZO AUTO FOCUS/AUTO WHITE BALANCE
Panasonic
AF PIEZO
X10

S-VHS MOVIE

AMORPHOUS PRO HEAD

FLYING ERASE HEAD

AF PIEZO

S VHS 625

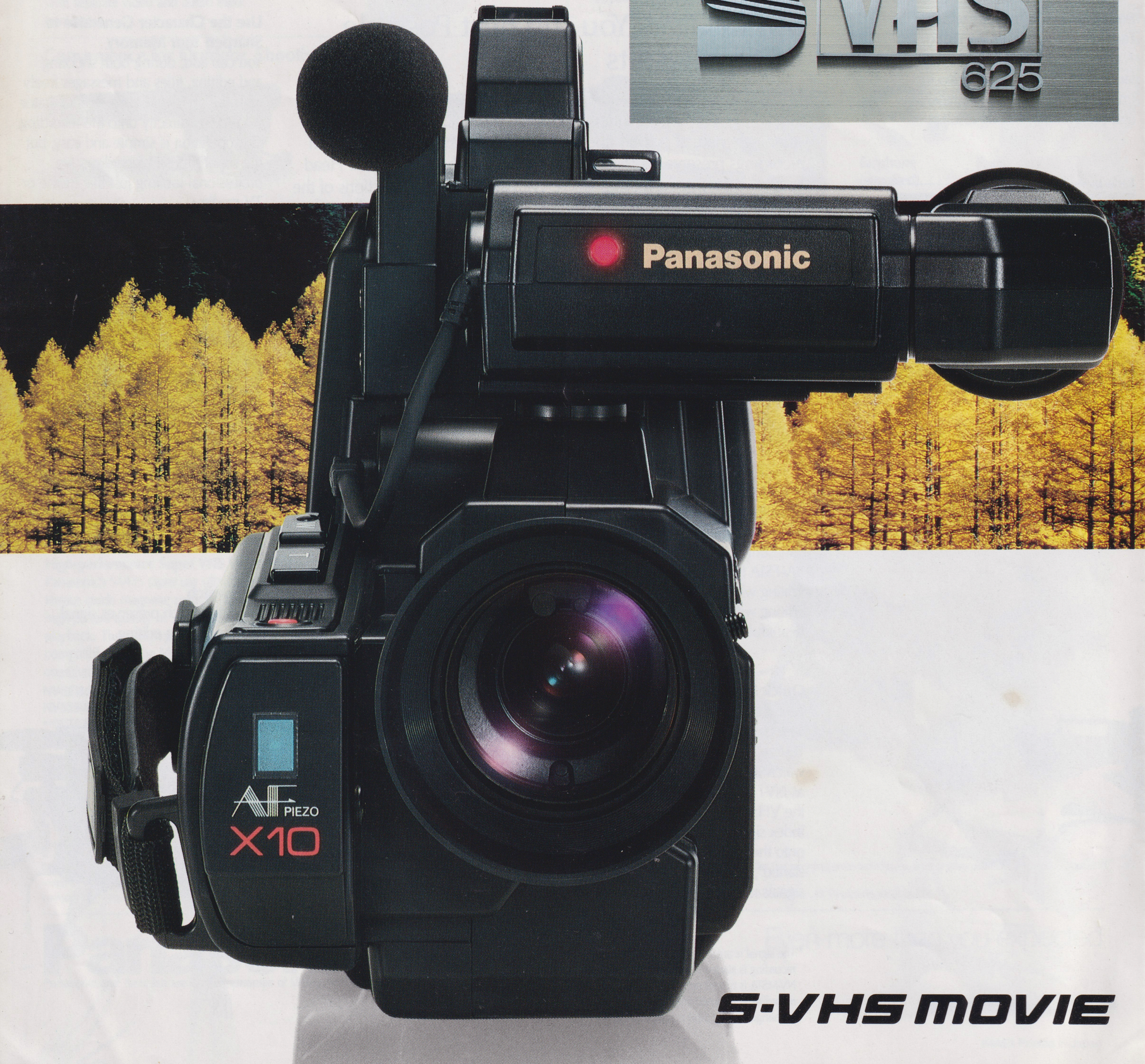
VHS
PAL

From Delicate Patterns to Sharp, Crisp Outlines... It's a Whole New World with the S-VHS Movie

You want to bring home the full range of nature's beauty — to visually capture the tiny petals of a nearby flower and trace every branch in the forest beyond. You want rich, expressive images that reflect the sights and sounds of your world. And you want to add your own creative touches to it. You can, with the new S-VHS Movie Camera. And you can expect professional results and a level of operation that's easy enough for anyone to master.

It's a whole new world. The vividly natural world of the Panasonic S-VHS Movie Camera NV-MS1A.

SVHS
625



S-VHS MOVIE

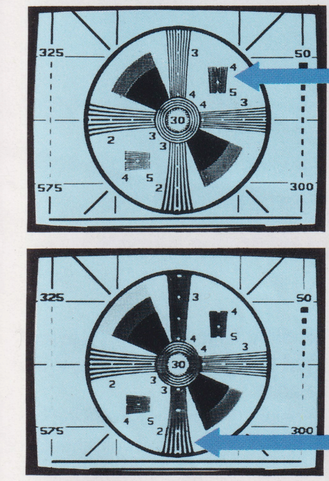
Crisper Outlines, Finer Details, and More Natural Textures from S-VHS

S-VHS Boasts High Resolution, a Better S/N Ratio, and Superb Picture Quality

S-VHS captures colours and shapes with detailed textures and patterns, and backgrounds with incredible depth and realism. It does it using three main technologies.

1. The feather-fine details of 400-line resolution.

Now even the finest details — a bird's feather or a single strand of hair — show up sharp and clear. In fact, S-VHS nearly doubles the sharpness of the video picture thanks to its more than 400 lines of horizontal resolution — as compared to the 240 lines of conventional VHS. To achieve this great improvement in image detail, we extended the luminance signal range that determines the horizontal resolution from the conventional 3.0 MHz to 5.0 MHz.

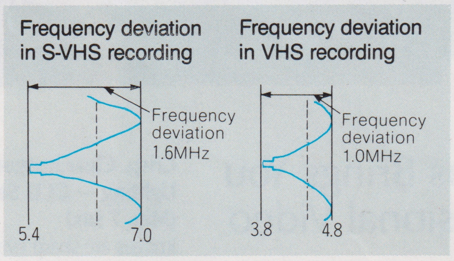


Over 400 lines can be counted with S-VHS

Only 240 lines can be counted with conventional VHS

Horizontal resolution refers to the number of vertical lines on the screen. The figures above show test patterns for measuring horizontal resolution.

2. A higher Signal-to-noise (S/N) ratio# and less noise thanks to a wider frequency deviation and a sub-emphasis circuit.



Noise is reduced and black-and-white gradation is considerably smoother. Higher resolution ordinarily means proportionally higher noise. To solve this problem, the NV-MS1A's S-VHS system combines a wider frequency deviation — 1.6 MHz compared with 1.0 MHz for VHS — with a sub-emphasis circuit to achieve this improvement.

The signal-to-noise (S/N) ratio is the ratio between the desired signal and undesired noise.

3. Crystal-clear, lifelike images supported by separate Y/C signal processing.

Separate processing of the luminance (Y) and chrominance (C) signals that make up the video signal prevents cross-colour and dot interference, to produce more uniform colouring and sharper image outlines. Conventional VHS processes these signals together. Naturally, for transmission to a TV set or another S-VHS VTR, the NV-MS1A is also equipped with an S-VIDEO terminal that feeds the two signals separately and preserves optimum picture quality.

Separate Y/C (Luminance/Chrominance) Signal Terminal

Technological Breakthroughs Enhance the Strikingly High Picture Quality of S-VHS

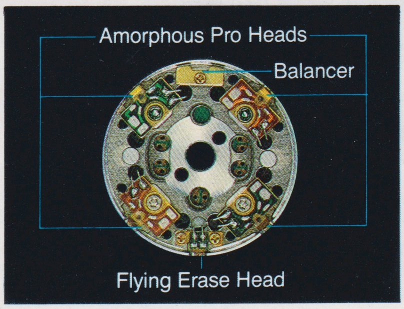
The S-VHS Enhancer: A 420,000-pixel CCD. The Proof: 420 Lines of Resolution at the Camera.

Fine details that were previously difficult to reproduce are caught in incredibly realistic images by Panasonic's newly developed 420,000-pixel CCD image sensor. Enhancing the superb picture quality of the S-VHS system, the CCD produces a full 420 lines of horizontal resolution, measured at the camera. The CCD image sensor is like a highly precise, electronic version of the human eye.

CCD image sensor for the resolution of a full 420 lines at the camera.

The Amorphous Pro Head Improves S/N Ratio

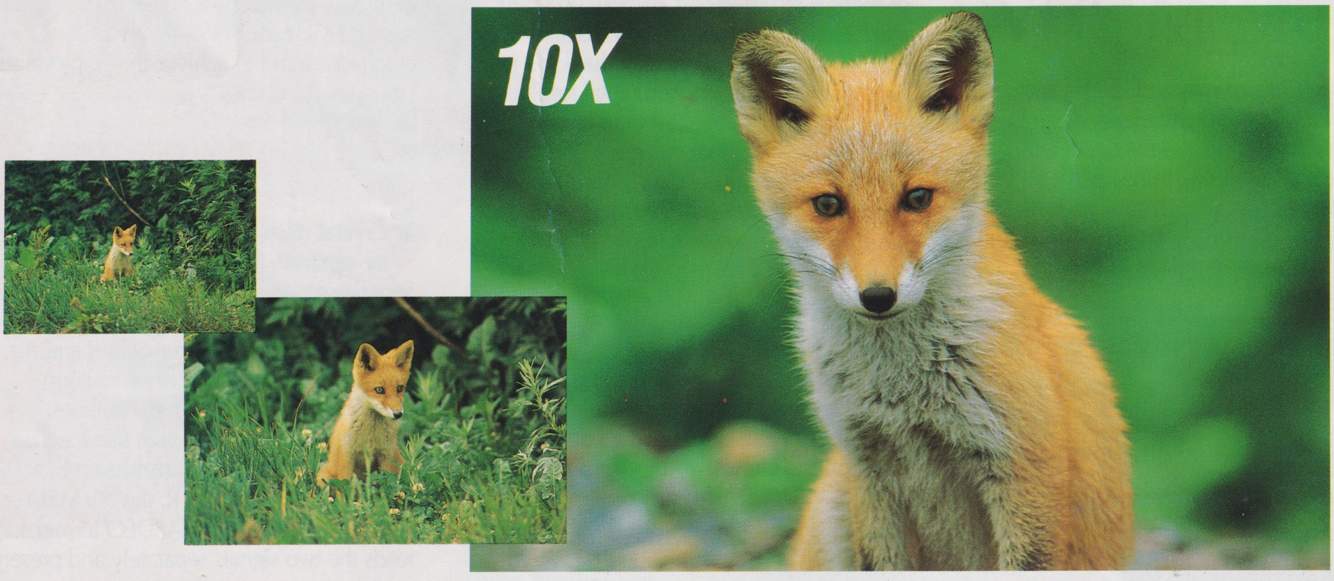
To assure optimal S-VHS picture quality, the NV-MS1A employs the same Amorphous Pro Head that is used in Panasonic's professional VTRs. It has a laminated layer which improves the S/N ratio over conventional ferrite heads by minimizing noise from tape contact, and thus adds to the NV-MS1A's exceptionally high resolution. Naturally, the Amorphous Pro Head also contributes to higher picture quality in VHS mode.



Noiseless Editing of S-VHS Camera Recordings with the Flying Erase Head

In order to take full advantage of S-VHS characteristics, the Flying Erase Head completely eliminates cross-colour at insert and assemble editing points. With no picture distortion between edited scenes, the beauty of the S-VHS image is fully preserved.

Shooting Functions that Match S-VHS Picture Quality.



The 10X Power Zoom Lens Brings You Right Up Close to Professional Video Shooting

Panasonic's new 10X Power Zoom Lens (F 1.4) makes your zoom shots exciting and professional-looking. Combined with the pure colours and sharp images of S-VHS, it allows you to find the facial expressions of wild animals close at hand even when they are far from you. Manual zooming at any desired speed is also smooth and easily controlled. For tiny insects and flowers, macro capability comes into its own.

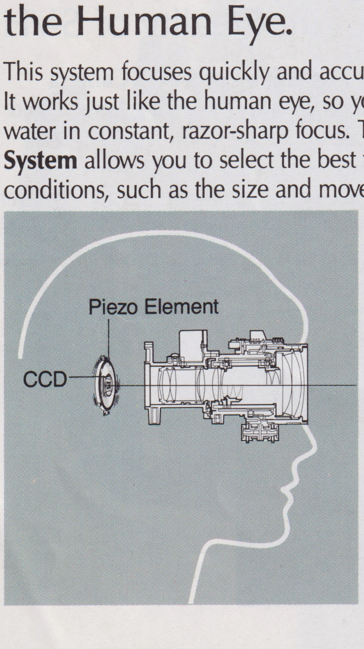
AF PIEZO
X10

10X

The 10X Power Zoom Lens provides a striking zoom shot easily and quickly.

Piezo Auto Focus System — Just Like the Human Eye.

This system focuses quickly and accurately even on fast-moving objects. It works just like the human eye, so you can shoot through glass or water in constant, razor-sharp focus. The **2-step Focus Zone Setting System** allows you to select the best focus zone according to shooting conditions, such as the size and movement of the subject.



AF PIEZO I·R 100

[#] Piezo Auto Focus System receives coveted I•R 100 Award in 1986
I•R 100 Awards are presented each year by the authoritative U.S. scientific magazine Research & Development.

Crisp, Clear Images Even in Dim Lighting — CCD Sensitivity Selector (Min. 7 Lux)

Images are sharp even when taken in lighting as low as a single candle. Setting the sensitivity selector to UP keeps the picture clear all the way down to 7 lux illumination.

The UP position provides clear images in dim lighting.

Action Invisible to the Human Eye Is Crystal Clear with the Variable High Speed Shutter (1/1000, 1/500, 1/250-sec.)

Capture sports and other fast-action scenes in clear slow motion or still, with no blurring. Choose the most suitable shutter speed, 1/1000, 1/500, or 1/250-sec., according to the speed of the subject's movement and the surrounding brightness. Naturally, conventional 1/50-sec. shutter speed is also available.

High Speed Shutter
(1/1000 sec.)

Stops even fast ball movement.
Ideal for analysing athletic form.

Conventional
(1/50 sec.)

Excellent Colour Even in Varying Light Levels — Auto Tracing White Balance

To obtain the best possible S-VHS picture quality, natural colour balance is a must. You get it by simply setting the white balance selector to AUTO. OUTDOOR or INDOOR presetting is also possible.

Adjust the Colour Precisely to Your Taste with Balance Control (Colour Phase Adjustment)

This control lets you fine-adjust colour tones to further enhance original video productions. Special colour effects — like a reddish tint for one scene, a yellowish tint for another — add an interesting touch.

Optimum Brightness Always: Auto Iris Control with Manual Adjustment

Images always have optimum contrast, even when the surroundings are dim or bright, thanks to Auto Iris Control. You can even adjust the contrast to your own liking with the manual adjustment function. In strong backlighting, for example, you can open the iris manually for a proper contrast.

Take Advantage of S-VHS Picture Quality with Multifunctional Editing.

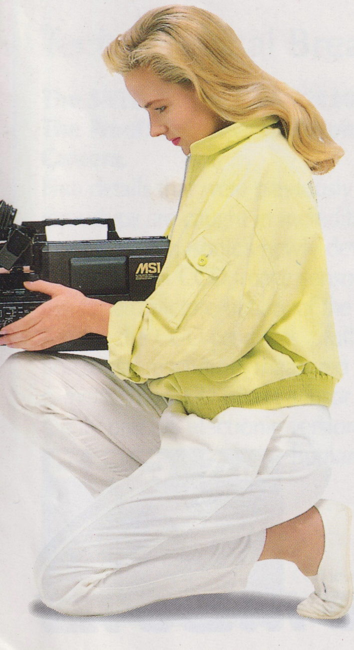
Mary (9)
Picnic in the Park
10/88

Softer Scene Transitions with Fade-in/Fade-out (Audio/Video)
A press of the button synchronizes the fading of both audio and video for impressively smooth scene transitions and professional-looking results.

Fade-in
Fade-out

Audio and video simultaneously fade in or out.

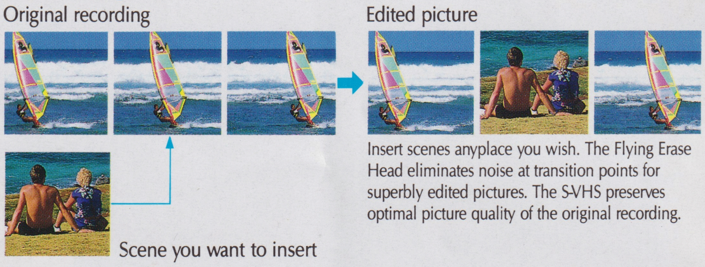
- Built-in uni-directional microphone with sensitivity selector
- External microphone jack
- Earphone jack
- Rec. Review
- Stand-by function
- Tally indicator with on/off switch lets the person you are shooting know that recording is in progress.



S-VHS Gives You the Best Possible Editing Results

Editing — such as insert and assemble editing — is the key to upgrading your original video productions. Thanks to the S-VHS's stunningly natural colours and sharp images, even second-generation recordings preserve their superior quality. And the Flying Erase Head assures noise-free scene transitions. With all the editing functions of the NV-MS1A, your productions will be truly complete.

Insert Editing



Insert scenes anyplace you wish. The Flying Erase Head eliminates noise at transition points for superbly edited pictures. The S-VHS preserves optimal picture quality of the original recording.

Winning Results of S-VHS Picture Quality in Connection with Panasonic's S-VHS VTR NV-FS1A
Panasonic also offers an S-VHS VTR NV-FS1A for excellent S-VHS quality editing with NV-MS1A. Of course, editing with a VHS VTR also produces beautiful results.

Quick Edit Searches on any VTR Also Equipped with the VHS Index Search System
You can quickly locate scenes to watch or edit when using a VTR, such as NV-FS1A, that's also equipped with the VHS Index Search System. An index signal is automatically encoded onto the tape when recording is started[#], and you can then insert index signals manually anywhere you wish.

Add Sound Appeal with Audio Dubbing
By adding narration or background music to scenes shot with the NV-MS1A, impressive sound effects are easily available to make your recordings more sophisticated.

Synchro Edit for Easier Editing
The Synchro Edit function on the NV-MS1A makes it possible to control it — start play, pause, etc. — from a Panasonic VTR equipped with the same function. This makes editing much easier.

Use the Character Generator to Sharpen Your Memory
You can add, during both shooting and editing, titles and messages freely with the optional Character Generator (VW-CG1E) directly onto the recording. The operation is simple and easy, but the superimposed recordings are professional-looking just like movie or TV credits.

Mary (9)
Picnic in the Park

Freely inserting titles and captions helps you keep memorable scenes in mind.

Optional Character Generator (VW-CG1E)

Edit Switch
The Edit Switch preserves signal integrity during editing.

MS1
S-VHS
Panasonic

[#] The signal is automatically encoded when:
recording is started for the first time after the NV-MS1A is turned on.
recording is restarted after the cassette is exchanged or the tape is played back.

S-VHS Is a Great Leap from VHS, but Still Works Hand-in-hand with it.

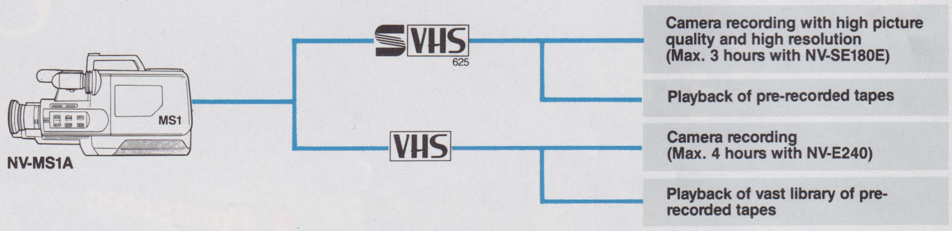
MS1
Panasonic
SE-120
SE-180

Naturally, You Can Record and Play Back in VHS Mode Too.

In addition to S-VHS recording and playback, the NV-MS1A records and plays back in the VHS mode#, and automatically detects whether the inserted cassette is S-VHS or VHS.

You can also record onto S-VHS tape in VHS mode by switching the S-VHS system selector off.

The Dual-function NV-MS1A: S-VHS and VHS Video

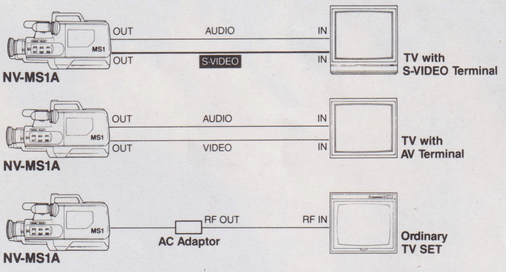

NV-MS1A
MS1
S-VHS
625
Camera recording with high picture quality and high resolution (Max. 3 hours with NV-SE180E)
Playback of pre-recorded tapes
VHS
Camera recording (Max. 4 hours with NV-E240)
Playback of vast library of pre-recorded tapes

Playback Possibilities to Meet Viewing Needs: Electronic Viewfinder or TV Set

You have your choice of playback methods. The 0.9″ EVF provides an on-the-spot check of recorded results. A connection with a TV gives you a full-size viewing. When connecting to a TV with the S-VIDEO IN terminal, you can enjoy the full benefit of S-VHS picture quality.

3-Way TV Connections

1. S-VIDEO Connection ··· **Best picture quality**
2. AV Connection ··············· **Better picture quality**
3. RF Connection ··············· **Good picture quality**


MS1
NV-MS1A
OUT
AUDIO
IN
OUT
S-VIDEO
IN
TV with S-VIDEO Terminal
MS1
NV-MS1A
OUT
AUDIO
IN
OUT
VIDEO
IN
TV with AV Terminal
MS1
NV-MS1A
RF OUT
AC Adaptor
RF IN
Ordinary TV SET

Other Versatility.

Another Shooting Convenience: Large 0.9″ Electronic Viewfinder

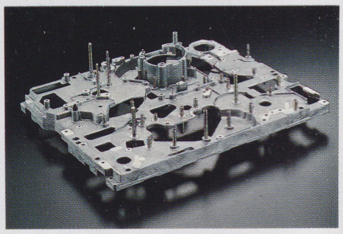
This large, easy-to-see 0.9″ EVF gives a bright, clear view while shooting, and includes a variety of shooting information and warning indications. It is also engineered to fit most shooting preferences, with a left/right sliding design and eyepiece corrector.

Auto Date Recording for Easy Dating and Timing

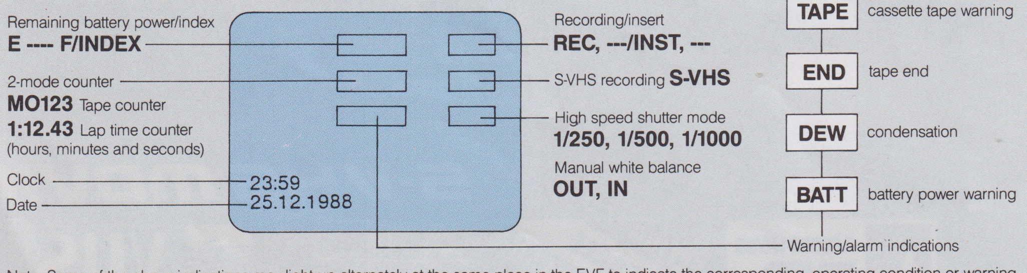
A built-in battery-operated digital clock allows free inserting and deleting of time and date or date alone during shooting for easy dating and timing of recordings.

One-piece Aluminum Die-cast Chassis

High stability under heavy-duty operating conditions is assured by Panasonic's original one-piece aluminum die-cast chassis.



Indications in the 0.9″ EVF

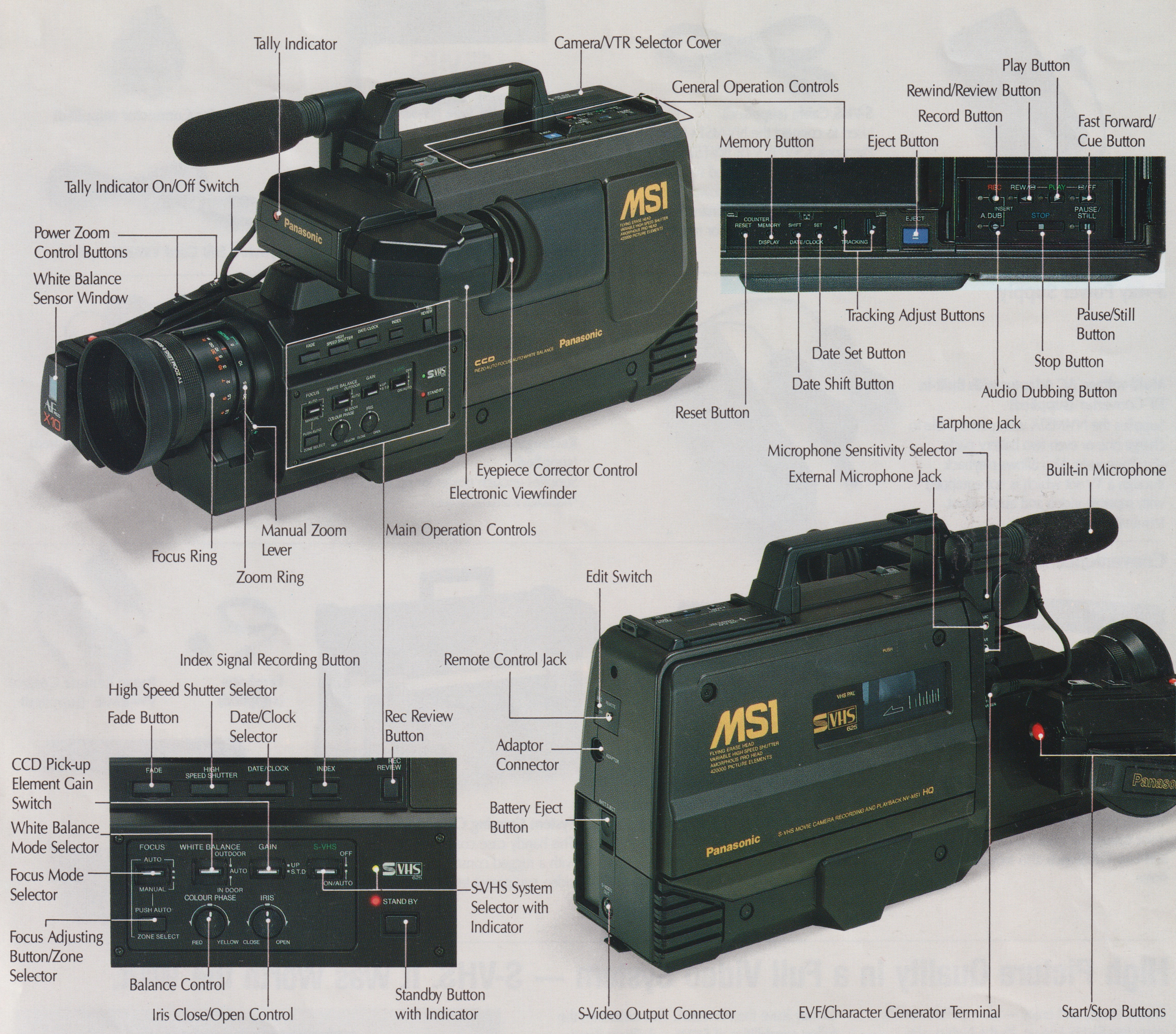

Remaining battery power/index
E ---- F/INDEX
2-mode counter
MO123 Tape counter
1:12.43 Lap time counter
(hours, minutes and seconds)
Clock
Date
23:59
25.12.1988
Recording/insert
REC, ---/INST, ---
S-VHS recording S-VHS
High speed shutter mode
1/250, 1/500, 1/1000
Manual white balance
OUT, IN
TAPE cassette tape warning
END tape end
DEW condensation
BATT battery power warning
Warning/alarm indications

Note: Some of the above indications may light up alternately at the same place in the EVF to indicate the corresponding operating condition or warning.

Other Features

- 2-mode counter display shows recording time in hours, minutes, and seconds.
- HQ (High Quality) Picture System in VHS mode
- Cue/review and still
- Pause remote control capability
- 3-way power supply (AC Adaptor, supplied/rechargeable battery pack, supplied/car battery cord VW-ACM1E, supplied)
- Tripod mounting capability

A Hand-fitting Body Design Lends Beauty to Function.


Tally Indicator
Camera/VTR Selector Cover
General Operation Controls
Play Button
Rewind/Review Button
Record Button
Fast Forward/ Cue Button
Memory Button
Eject Button
Tally Indicator On/Off Switch
Power Zoom Control Buttons
White Balance Sensor Window
Panasonic
MS1
CCD
Panasonic
AF X10
COUNTER RESET
MEMORY
DISPLAY
SHIFT
SET
DATE/CLOCK
TRACKING
EJECT
REC
REW
PLAY
FF
INSERT A DUB
STOP
PAUSE/ STILL
Tracking Adjust Buttons
Pause/Still Button
Date Set Button
Stop Button
Date Shift Button
Audio Dubbing Button
Reset Button
Earphone Jack
Microphone Sensitivity Selector
External Microphone Jack
Built-in Microphone
Eyepiece Corrector Control
Electronic Viewfinder
Manual Zoom Lever
Main Operation Controls
Focus Ring
Zoom Ring
Edit Switch
Index Signal Recording Button
Remote Control Jack
High Speed Shutter Selector
Fade Button
Date/Clock Selector
Rec Review Button
Adaptor Connector
CCD Pick-up Element Gain Switch
Battery Eject Button
White Balance Mode Selector
Focus Mode Selector
Focus Adjusting Button/Zone Selector
FADE
HIGH SPEED SHUTTER
DATE/CLOCK
INDEX
REC REVIEW
FOCUS
AUTO
MANUAL
PUSH AUTO
ZONE SELECT
WHITE BALANCE
OUTDOOR
AUTO
IN DOOR
COLOUR PHASE
RED
YELLOW
GAIN
UP
S.T.D
IRIS
CLOSE
OPEN
S-VHS
OFF
ON/AUTO
SVHS 625
STAND BY
S-VHS System Selector with Indicator
MS1
SVHS 625
VHS PAL
Panasonic
S-VHS MOVIE CAMERA RECORDING AND PLAYBACK NV-MS1 HQ
Panasonic
Balance Control
Standby Button with Indicator
Iris Close/Open Control
S-Video Output Connector
EVF/Character Generator Terminal
Start/Stop Buttons

Performance Data and Specifications

NV-MS1A

Power Source:	DC 12 V
Power Consumption:	Recording mode: 12 V - 9.0 W (Battery Operation) Stand-by mode: 12 V - 1.0 W (Battery Operation)
Head System:	4 Amorphous Pro Heads with Flying Erase Head
Tape Speed:	23.39 mm/sec.
Tape Format:	SVHS & VHS tape
Recording/Playback Time:	180 min. with NV-SE180E 240 min. with NV-E240

VIDEO

Television System:	CCIR: 625 lines, 50 fields PAL colour signal
Modulation System:	Luminance; FM azimuth recording Colour signal; Converted subcarrier phase shift recording
Output Level:	ADAPTOR (Multi); 1.0 Vp-p, 75 ohm unbalanced

AUDIO

Input Level:	MIC IN (M3); −70 dB, 4.7 Kohm unbalanced
Output Level:	ADAPTOR (Multi); −8 dB, 600 ohm unbalanced
Audio Track:	1 track (MONO)
Image Sensor:	1/2-inch CCD Image Sensor
Lens:	10:1 Power Zoom Lens with MACRO Function, Auto Iris Auto Focus System F 1.4 (8 ~ 80mm) Lens Front Diameter 55mm
Viewfinder:	0.9-inch Electronic Viewfinder
Standard Illumination:	1,400 Lux
Minimum Required Illumination:	7 Lux (GAIN UP)
Video Horizontal Resolution:	Colour: More than 400 lines (S-VHS)
Audio Frequency Response:	80 Hz ~ 8 kHz

Operating Temperature:	0°C ~ 40°C
Operating Humidity:	10% ~ 80%
Weight:	Approx. 2.7 kg (without Battery Pack)
Dimensions:	127 (W) x 223 (H) x 417 (D)mm (with Viewfinder turned down)

AC Adaptor

Power Source:	AC 100 ~ 240 V, 50/60 Hz (Automatic Voltage Adjustment)
Power Consumptions:	44 W
DC Output:	DC 12 V, 1.2 A, DC 20 V 0.1 A (S-VHS Movie) DC 12 V 1.5 A (Battery Pack charging)
RF Modulated:	VHF Channel 0 or 1, 75 ohm, unbalanced
Weight:	Approx. 0.86 kg
Dimensions:	63 (W) x 84 (H) x 219.5 (D) mm

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

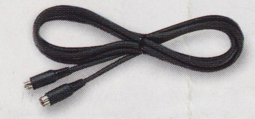
All TV pictures are simulated.

A Range of Accessories Expand Your New Video Camera World.

Accessories to Expand Editing And Playback Possibilities

Panasonic
CHARACTER GENERATOR

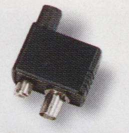
Character Generator VW-CG1E (option)
Offers an easy way to superimpose titles or captions.



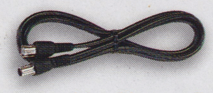
S-VHS Cable (supplied)
Used to connect the NV-MS1A to Panasonic's S-VHS VTR NV-FS1A (or equivalent) or TV equipped with an S-VIDEO terminal. This allows the luminance (Y) and chrominance (C) signals to be separated and sent for maximum picture quality.

Panasonic
NV-SE60E
SE-60
HIGH RESOLUTION VIDEO CASSETTE
S-VHS
625

S-VHS Cassette Tape NV-SE60E (supplied)



AV Converter Connector (supplied)



DIN-DIN Coaxial Cable (supplied)

Synchro Edit Cord VW-K1E (option)

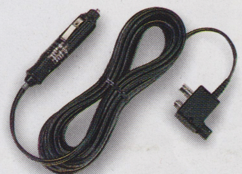
3-way Power Supply

Multi-voltage AC Adaptor with Built-in RF Converter (supplied)
Supplies the NV-MS1A with power. Able to charge one or even two battery packs simultaneously. Also allows playback through a TV set which is not equipped with separate video and audio input terminals.

Panasonic
VW-VBM7E

Rechargeable Battery Pack VW-VBM7E (supplied)#
Supplies enough power for up to about 2 hours.

Also available as an optional accessory.



Car Battery Cord VW-ACM1E (supplied)

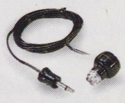
Convenience for Outdoor Shooting and Travel

Super-directional Microphone (Zoom Microphone) RP-VM130E (option)
The directivity and sensitivity can be consecutively increased to a level 4 times as high as that in uni-direction. The unit's floating design minimizes mechanical noise caused by vibration. A Wind Screen and Low Cut Switch also reduces wind noise.

Super-directional Microphone RP-VM70E (option)
Equipped with 2-step sensitivity switch. In the HIGH position, this switch increases the clarity and volume of distant sounds by as much as four times. The microphone twists 35° vertically, and turns 180° horizontally. The unit's floating design minimizes mechanical noise caused by vibration, and a Wind Screen reduces wind noise.

Panasonic
S-VHS

System Carrying Case VW-SHS1E (supplied)
This handy case combines a professional design with a rugged construction to enable valuable video equipment to be safely carried and stored.



Earphone (supplied)

Pause Remote Control VW-RM1E (supplied)

Shoulder Strap (supplied)

Shoulder Pad VW-SP7E (option)

High Picture Quality in a Full Video System — S-VHS. It Was Worth the Wait.

Shoot, create, and enjoy — all with Panasonic's complete S-VHS line-up. It's the high-quality answer to today's video demands, in a video system for the future.

High-performance Super VHS Video Tapes
Panasonic's S-VHS tapes use ultrafine cobalt ferrous oxide magnetic particles to enable the high picture quality of S-VHS recording and playback. These high-performance tapes are compatible with the VHS format and offer high coercivity.

NV-SE180E (180 min.) **NV-SE120E (120 min.)**
NV-SE60E (60 min.)

- NV-SE60E is supplied as a standard accessory for both the NV-MS1A and the S-VHS VTR NV-FS1A.

TV with S-VIDEO Terminal
TV's S-VIDEO terminal (with separate Y and C input terminals) receives Y and C signals exactly as they leave the NV-MS1A. This unleashes the fullest capabilities of S-VHS — brilliant detail, superb clarity and a level of beauty that's pure delight.

- Several Panasonic's TVs with an S-VIDEO terminal are available. Please see your distributor for details.

Super VHS Hi-Fi Video Cassette Recorder NV-FS1A
A combination of S-VHS and Amorphous Pro Head produces superior picture with a horizontal resolution of more than 400 lines. In connection with the NV-MS1A, the NV-FS1A lets you edit your camera recording with its superb picture quality preserved. The Flying Erase Head assures smooth scene transitions at edited points. Using the advanced hi-fi sound features, the NV-FS1A also boasts an extremely wide dynamic range of more than 90 dB.

Panasonic
SE-180
SE-120

HQ
HQ (High Quality) Picture System
Video recorders carrying the HQ symbol feature the VHS High Quality Picture System. This system assures complete compatibility with VTRs that use the conventional VHS system.

Caution: Your attention is drawn to the fact that recording prerecorded tapes, discs or other published or broadcast materials may infringe copyright laws.
Specifications are subject to change without notice. All TV pictures simulated.

$3232:00 Ex TAX

Panasonic®
Panasonic and Technics are the brandnames of Matsushita Electric.

Even more than you expected

K4AE1 Printed in Japan.